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STUDENT RESEARCH REPORT

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CAPABILITIES AND LIMITATIONS
OF THE SOVIET ARMY TO CONDUCT
NIGHT ATTACKS
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FOREWORD

This research project represents fulfillment of a student requirement for successful completion of the overseas phase of training of the Department of the Army's Foreign Area Officer Program (Russian).

Only unclassified sources are used in producing the research paper. The opinions, value judgements and conclusions expressed are those of the author and in no way reflect official policy of the United States Government; Department of Defense; Department of the Army; Office of the Assistant Chief of Staff of Intelligence; or the United States Army Institute for Advanced Russian and East European Studies.

Interested readers are invited to send their comments to the Commander of the Institute.

ROLAND L. LAJOIE
LTC, MI
Commander

SUMMARY

The author analyzes the capability of the Soviet Army to conduct an offensive at night, and describes the Soviet experience during World War II, current doctrine, and recurring problems in Soviet battalion and company training exercises. The author maintains that training deficiencies and the emphasis on careful planning and preparation are factors which seriously limit the ability of the Soviets to conduct night offensives in which complete divisions are commited on a sustained basis. He concludes that round-the-clock offensive operations by complete divisions are unlikely and proposes a more probable concept in which division second echelon units conduct the majority of night attacks.

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CHAPTER I.

THE EXPERIENCE OF WORLD WAR II

As Soviet affairs analyst John Erickson has noted, the leadership of the Soviet Army continues to look to the experiences of the Great Fatherland War for guidance in developing contemporary strategy and tactics.[1] In 1974 General-Lieutenant E.T. Marchenko stated,

> With each year, fewer and fewer participants of the Great Fatherland War remain in the ranks of our armed forces, the bearers of valuable combat experience. Combat experience accumulated by the Soviet Army in the war years must become the basis of theoretical and practical problem solving and the methods of conducting modern warfare, taking into account new organization and equipment .. ...The task and duty of all our officers, especially the young, is to deeply study the military operations of the Great Fatherland War and to put such experience to creative use in the training and indoctrination of subordinates.[2]

This chapter will be devoted to an analysis of the combat examples portrayed in the four-volume set of tactical studies of wartime operations at regimental level and below which appeared in 1974, as well as a limited report on division-level operations from another source.

A. COMPANY-LEVEL OPERATIONS

In terms of sheer numbers, Soviet night attacks in the early years of World War II were conducted more frequently at the company level than by larger units. This may be attributed in part to the doctrine on night operations prescribed in the 1941 field regulations, which suggested that the scope of night offensive operations should be limited to seizing strong points, with emphasis on minimal maneuvering.[3] In the majority of cases, night attacks in 1942 and 1943 were intended to eliminate enemy strong points and salients which jutted into Soviet lines, or to seize bridgeheads.[4]

In the period prior to wide-scale use of night

vision devices, U.S. Army doctrine characterized night attacks as either non-supported/non-illuminated or supported/illuminated, and the Soviet Army took a similar view. A common objective of both armies has always been to use the cover of darkness to achieve surprise. When an approach to enemy positions was to be made by stealth, hoping to prevent detection until the last possible minute, the non-illuminated/non-supported technique was employed. When the Soviets conducted limited objective night attacks in the early phase of the counter-offensive they usually opted for this type of attack (See Annex B).

There is no evidence to suggest that a particular time of night was favored for launching the assault, although a majority of company-size attacks took place within the four hour period from 2200 to 0200. The only occasion on which a predawn assault was launched occurred in connection with seizure of a bridgehead, which was to be followed by a general offensive in daylight.

Despite the problems of orientation in periods of darkness, Soviet Infantry companies did not limit themselves to simple assaults "on line." In half the combat examples listed some form of an envelopment took place, and in one instance five platoon size units each converged on the objective from a different direction.[5] The ingenuity of small unit leaders was manifested in other ways. In a number of cases diversionary actions were planned, some of which were accomplished by units at a higher level, such as the series of probes made across a 1 kilometer front by scouts from a reconnaissance battalion which enabled the attacking company to penetrate the enemy defense barrier undetected and launch its final assault at close range.[6] On another occasion the attacking company deliberately moved into an assembly area in daylight in a different sector than the one containing it's objective and acted as if they were conducting preparations for an attack in that area. After dark they moved to an open area to the front of the actual objective and launched a successful attack on an unexpecting enemy.[7] On another occasion a company attacked in a "Vee" formation, center platoon to the rear. Troops were instructed that only the center platoon was to return fire if the attack was prematurely discovered, which did in fact happen. While the

enemy force concentrated its fire on the center of the formation, the two flanking platoons reached the enemy trench undetected and quickly took the position.[8]

Unit leaders demonstrated resourcefulness in other areas as well. Special craft were not always provided for river crossings at night. In one case the assault company constructed two rafts from fishing boats, and retained a boat as a third craft. Although two were lost in the initial crossing, the third eventually made twenty crossings of the Dnepr, which was 300 meters wide at the crossing point.[9]

Successful company size night attacks were characterized by detailed planning, thorough reconnaissance and observation, and close coordination with supporting units. These three themes are repeated in the summaries of lessons learned contained in each combat example. The efficient use of the time available for planning, especially daylight hours, is considered to be a critical factor. Preparations were not carried out in haste - success is often attributed to the fact that things were done carefully, that decisions were based on as complete information as possible, and that senior commanders were careful to insure that adequate time was made available. In no case is there any indication that attacks were launched to "get things moving" or "capture the spirit of the offensive." In every instance objectives were selected because their occupation by the enemy represented a direct threat to the integrity of a larger unit. Operations were conducted deliberately, yet vigorously. This seems to be the theme which pervades the lessons learned in these tactical examples.[10]

B. BATTALION-SIZE ATTACKS

The principles learned in company operations were applied equally to attacks by larger forces, including tank units. A successful attack on the village of Luneberg in April 1945 was accomplished by a combined arms team of two tank companies, an infantry company, and two batteries of self-propelled artillery. The terrain in this area favored the defender as there were numerous small lakes and ponds located on the intended axes of advance of the division. The Germans had occupied the villages and established a strong points where gaps existed between the water obstacles.

The division objective, Frauenberg, lay several kilometers to the west. Between it and the advancing units lay Luneberg, heavily defended and flanked on both sides by unfordable ponds and lakes. A road led directly to the town along the assigned direction of attack. After receiving the order to conduct a night attack to eliminate this strong point at Luneberg, the tank battalion commander decided on a frontal assault in a single echelon, using the road as a boundary between units. Infantry was directed to ride on tanks initially, two platoons being allocated to the tank company in the north and one in the south. The self-propelled artillery was to follow in the center. The tank companies each adopted a wedge formation.

The attack was launched at 0300 hours with an intense artillery preparation, causing fires to break out in the village which aided orientation. As the tanks began to receive fire from German positions both companies shifted further from the road, enabling the attached artillery to move up and suppress the enemy by direct fire. The tank companies subsequently enveloped the strong point while the infantry platoons cleared trenches and buildings of enemy troops. This successful operation was attributed to the decision of the battalion commander to adopt a simple, easily controlled formation and the attachment of infantry and self-propelled artillery to accompany the tanks.[11]

Another operation emphasized the importance of mutual support, and demonstrated that an exceptionally well fortified position is a logical objective for a night attack. This action involved the 520th Rifle Regiment, whose advance had been halted by a German strong point at the village of Lopushna on 28 January 1945. The Germans had prepared positions around the village, which was located on the highest ground in the area. Two personnel trenches had been dug, as well as an antitank ditch several kilometers in length anchored at critical points on unfordable streams. Earthworks were protected by double and triple rolls of concertina wire. Well-placed machine guns covered the approaches, as well as numerous strips of antitank and antipersonnel mines. The defending force on the battalion objective had a strength of two infantry companies. Some of the defensive positions had overhead cover and protected ammunition storage areas.

The battalion commander decided that the key to a successful attack in this case would be seizure of the initial trench line by surprise, rather than neutralization by firepower. His concept called for using an attached sapper platoon to clear a path through the wire and minefield barrier, whereupon a small force from each company would approach the initial trenchline by stealth and attempt to overwhelm the defenders by a rapid assault at close range. Supporting artillery planned their fires on positions futher to the rear. Time of attack was set for 0200 hours, experience having shown that enemy troop alertness would be at its lowest point at that time.

The plan worked perfectly. A platoon from each company was designated as the initial assault force. A detachment of sappers attached to each platoon made two passages for each company. The assault groups approached the initial trench line undetected and upon a visual signal (green flare) launched their attack with a shower of hand grenades. The defending force, caught completely unawares, panicked and fled to the rear. The remainder of each company immediately followed the assault using the prepared and marked passages. The rest of the attack went more slowly, as the defending position had been prepared in depth and the remainder of the defense force had been alerted. The attack became a series of short assaults - as each platoon secured a new position it would direct its fire to the flank to support the advance of another unit. This occurred between platoons of different companies as well, with no illumination support. After a four hour fight the objective was taken with minimal casualties.[12]

These two examples, each of which were part of a larger operation, demonstrated the expertise which had been gained by Soviet units by the last year of war. The second example demonstrates that for all their reputed dependence on massive fire support, there were times when commanders would forego artillery support in favor of surprise.

As with the lessons learned in company-level operations, Marchenko cites careful planning, selection of easily controlled formations, thorough reconnaissance and observation, and the achievement of surprise as the key factors contributing to the success of these operations.

C. REGIMENTAL OPERATIONS

A preference for achieving surprise at the expense of preparatory fires was shown by some regimental commanders. Successful attacks by the 605th and 712th Rifle Regiments, in January, 1944, are examples cited as successful surprise attacks without an artillery preparation. In the latter case the regiment was reinforced with a battalion of ski-troops from another division. The offensive took place in a blinding snowstorm, the attackers having reached a point 50 meters from the enemy defense before they were discovered.[13] However, this was not always the case. A night attack by one of the regiments of the 37th Guards Rifle Division in August 1943, was preceded by preparatory fires of fifty artillery pieces, all employed in a direct fire role.[14]

Tanks were employed successfully in night attacks at regimental/brigade level. At Gomel in 1943, tanks attached to a rifle regiment made a 12 kilometer penetration in one night, losing only one tank. Near Budapest, in 1945, the 46th Guards Tank Brigade began its attack at 0300 hours 20 kilometers distant from their objective, without artillery support, and successfully seized its objective without stopping in route.[15]

The combined arms principle was firmly established by 1943, at least for night operations. The attachment of mortars, artillery, antitank guns, sappers, and machinegun units was a standard procedure. In many cases the fire support units formed the only reserve of the maneuver units. In the Berlin offensive two batteries of self-propelled artillery and two tank companies were attached to a single rifle company.[16]

Reznichenko states that regimental and brigade commanders, cognizent of the complexities of movement behind enemy lines at night, favored the line formation in the first echelon. This ususally permitted the attacker to move 5 or 6 kilometers past the enemy defense line by dawn, at which time the second echelon would be committed.[17] This is not to say that maneuver was limited to frontal attacks. Regiments successfully conducted envelopments, as did the 880th Rifle Regiment in February, 1944 (See Annex C).

D. DIVISION OPERATIONS

Although the limited objective night attack charactarized the initial phase of the war there were some exceptions. By Special Directive of the Military Council of the Western Front, dated 29 December 1941, commanders were directed to conduct detailed planning for night offensives, especially in the seizure of population centers.[18] Subsequent operations were so successful that the scale of activity grew from small unit to divisional level. One example is the 10th Army offensive of 6-7 December 1941. A series of night attacks at regimental and division level were conducted with many of the troops using skis. Penetrations as deep as seven kilometers were made by some units.[19] However, Sukhinin points out that serious difficulties such as maintaining direction, were encountered in the early stages of the war by many units. Commanders did not select orientation markers below regimental level. A lack of signal and illuminating flares and communications hindered maneuver, especially the employment of the second echelon, and units attacking in straight lines took heavy casualties.[20]

To solve these problems division staffs were given the responsibility of developing detailed plans for all night attacks, insuring that sufficient time was available for planning, as well as directing coordination between maneuver units and supporting units. By 1943, divisions were conducting successful night attacks, such as the 8th Guards Army offensive at Zaporozhia, in October 1943. A three-division daylight attack having stalled, the army commander directed that each division launch a reinforced company attack the following night to seize strong points. After careful preparation over the next day and night the limited objective attacks were launched successfully at 2200 hours. At 0200 hours, the regiments having moved forward to join the advanced units, a division-size attack began after fifteen minute artillery preparation. A penetration of 10 kilometers was accomplished by dawn.[21]

Large scale night attacks were generally more successful in the third phase of the war when the Soviet Army was in pursuit. In June 1944, the 8th Rifle Division, having penetrated the enemy main defense belt, came to the second belt. The army commander decided to penetrate this line with a night attack, and brought the second echelon regiments

into the battle, launching an assault at 2000 hours after a ten minute artillery preparation. This was successful and by 0900 hours a breakthrough had been achieved. At 1700 hours the intermediate defensive line was reached. To continue the pursuit the army commander committed his second echelon division, the 39th Guards. Attacking at 2000 hours after a fifteen minute artillery preparation, the division penetrated five kilometers in 5½ hours. By 0800 hours the following morning both divisions had advanced 30 kilometers of which one-third was covered at night. The average rate of advance was 20 kilometers a day.[22]

Other large-scale attacks were conducted at Kiev by the 38th and 3rd Guards Tank Armies, the tanks attacking with searchlights and sirens. In the final Berlin offensive, begun at 0320 hours by a massive artillery barrage, 143 searchlights were employed which blinded enemy troops and helped achieve a deep penetration by the 3rd and 5th Shock Armies.[23]

Thus the end of the war saw a wider application of night operations. The depths assigned to divisions came to be the same for daylight attacks. (See Annex A). Experience showed that combined arms battalions and regiments could attack the flanks and rear of the enemy either independently or in conjunction with the main attack. By 1943 most divisional units were prepared for night combat, especially those in the second echelon. Sukhinin states that in a series of operations in 1945, the use of second echelon units at night enabled troops to advance without interruption. In East Prussia, divisions of the 6th Army conducted a pursuit of "unstoppable character" by employing second echelon units at night and continuing the attack with first echelon units in the daytime. The proficiency of the units attacking at night increased significantly due to their repeated employment at night only.[24]

E. INDEPENDENT OPERATIONS

Soviet units conducted raids and reconnaissance patrols as well as conventional attacks, during which they skillfully infiltrated Gemany lines to perform a variety of missions.

One former reconnaissance company commander reported that his unit conducted operations in an area where the Germans

had an average of 1300 troops, 60 machineguns, 25 field guns, and 20 mortars per one kilometer of defensive line, yet he states that in his unit's first month of operation more than 20 prisoners were captured by patrols from his unit.[25] Another veteran of World War II reported that 10,630 reconnaissance operations were conducted on the Eastern Front in 1943-44 with 6,171 resulting in the capture of prisoners and/or documents.[26]

Soviet units carried out large-scale independent operations in the form of raids. In December 1943, German forces withdrawing to the west established a temporary defensive position at the confluence of the Dnepr and Bobrovka rivers. The German 110th Infantry Division was known to have established its headquarters at Komarichi, several kilometers to the northwest. A main attack was scheduled for dawn, 23 December, to advance to the north and clear the east bank of the Dnepr of German troops. This was to be followed by large-scale offensive to the west which would involve multiple crossings of the Dnepr.

To enhance the chances of success for the main attack it was decided that a 300-man detachment of ski troops would attempt to infiltrate to the division headquarters and destroy it the previous night. Shortly after nightfall on the 22nd, the detachment moved north on the frozen bed of the Dnepr and slipped through the German lines. After several hours the detachment reached a point slightly north and west of Komarichi, where they left the river bed and moved toward the village, arriving at 0300 hors. Using German-speaking troops the detachment deceived the local security force, surrounded the division headquarters, and launched a surprise attack. During the raid the division commander and several staff officers were killed, 14 vehicles were destroyed, and numerous documents were captured. The detachment was able to exfiltrate itself under cover of artillery fire and participate in the main attack which began at 0600 hours. Lacking command and control, the German defense in the sector crumbled.[27]

Soviet units participating in these large and small unit independent operations took the same care in preparing for their missions as did other units planning night operations. They did everything possible to accumulate detailed information about the enemy and terrain in the proposed area of operations. They conducted rehearsals and task organized for each mission, and perhaps most importantly,

trained at night. It is significant, however, that the early years of the war (1941-1942) do not contain many accounts of successful operations at night. The ability to perform well at night was apparently learned on the battlefield, not the training ground.

CHAPTER II

SOVIET DOCTRINE ON EMPLOYMENT OF COMBAT AND COMBAT SUPPORT UNITS

Soviet Army field regulations no longer state that night attacks have a limited application. If it required two years to establish this principle during the Great Fatherland War, the lesson has not been forgotten. Night attacks now "are typical, usual actions under modern conditions and can be launched from the march or when in contact."[28] One military writer states that the most important component of tactical training for companies and battalions is their skill at night combat.[29] Advantages cited for night offensive operations are essentially the same as those mentioned in U.S. Army publications: concealment of intentions and secret concentration of forces, achievement of surprise, fewer losses, and the ability to attack with fewer forces than during daylight.[30] Night attacks can be launced to accomplish a variety of missions, such as a breakthrough crossing of a water obstacle, a strike at enemy nuclear delivery units or reserves, reconnaissance in force or a diversion.[31]

A. PLANNING, PREPARATION, AND TROOP LEADING PROCEDURE

Soviet books and articles written or the subject of the night offensive stress the importance of careful planning and thorough preparation. The lessons learned at the conclusion of each combat action described in the tactics in Combat Examples series repeatedly state that the success of the operation was partly due to thorough preparation, although other factors such as good leadership, vigorous execution, and proper selection of routes are mentioned. Practically all Voennyi Vestnik articles on night operations published in the 70's emphasize the necessity for detailed planning.

Soviet authors agree that it is important to use daylight for at least part of the planning sequence. One writer states that the basis for successful night combat is laid before dark.[32] Another states that reconnaissance of the objective should be accomplished twice, during daylight and after nightfall.[33] Col. R. Dukov, who has been published twice on this subject, says that rehearsals should take place during daylight as well as at night.[34]

Combat and training examples emphasize the necessity for commanders to make a personal reconnaissance of the objective and avenues of approach to it. As a rule, operations orders are issued to subordinate commanders at a forward observation post which overlooks the enemy position. When a subordinate receives word to come forward to receive an order he either brings his own subordinate leaders with him or directs them to join him after a short while. He develops his concept on the ground and explains it to them before returning to his unit.

In developing his plan the commander considers the problems that night operations entail. Difficulty in navigation, orientation and maneuver dictate that complicated maneuvers and battle formations be avoided.[35] The depth of the objective will be determined by the senior commander. If ambient light conditions are adequate or artificial illumination is planned, the objective may be at the same depth as for a daylight attack. When illumination is limited, the depths of the attack will be reduced.[36] Commanders analyze the approaches to the objective but depend upon reconnaissance reports for specific data. Scouts are always dispatched to select company and platoon routes, and they approach the enemy position as closely as possible. They have the primary responsibility of determining where obstacles will be breached.

A significant part of the attack plan is devoted to control measures. Despite the fact that Soviet combat vehicles are equipped with night vision devices and navigation equipment, soviet commanders attempt to make maximum use of natural and artificial orientation aids. In addition to battlefield illumination (if used), special artillery rounds which burst in various colored flashes are fired at unit objectives, alignment lights to indicate direction of attack are emplaced, and visual signals to call for, adjust and cease fire are designated. Natural terrain features to mark objectives are selected (two to three for each company-size unit), and roads, depressions and streams are used to assist in navigation. An azimuth is assigned to each attacking sub-unit and a base unit, usually in the center of the formation, is designated for others to guide on.[37] Platoons and companies establish mutual recognition signals, take measures for identification such as the emplacement of panels or tape on tank hulls and turrets, and the wearing of white arm

by infantry troops. A standard operating procedure for many units appears to be the marking of targets with tracer ammunition.

Soviet troop leading procedure is similar to our own. Generally the senior commander develops his concept early in the afternoon after accumulating as much information as he can from units in contact or reconnaissance units and his own personal observation. He gives this concept in the form of a warning order to subordinates who then initiate their own troop leading steps. Care is taken to insure that enough time is made available, especially in daylight hours, for subordinates to plan their operation. Rehearsals are frequently conducted. Prior to departure from the assembly area, small unit leaders are expected to check troops for availability of ammunition and pyrotechnics and knowledge of the mission. Vehicles are checked for serviceability, especially lights and night vision devices.

B. EMPLOYMENT OF MANEUVER UNITS

The combined arms principle is firmly established in Soviet doctrinal and organizational concepts. Tanks and infantry always attack together, although formations and forms of maneuver will be dictated by the terrain, composition of the defending force, and visibility.

Tank units lead the attack when visibility is good, the terrain affords good maneuverablility and trafficability and the enemy's antitank weapons have either been suppressed or are concentrated in another sector. Tanks are also used to compensate for an inferiority in strength.[38] Combat formations employed by tank units are the same at night as those used in daytime. Their mode of employment should be characterized by simplicity of maneuver and advance by the most direct route. Attached infantry units either follow in their vehicles or move in gaps between tanks, defending the tanks against enemy tank hunter teams.[39]

When units depart from their assembly areas an approach march formation is employed should a meeting engagement take place. Tanks, artillery pieces, ATGM's and antitank weapons (such as the SPG-9) designated for direct fire support, as well as those tanks to be equipped with mine clearing devices and dozer blades, move out prior to the

main body. To prevent the enemy from detecting preparations for the attack, units occupy the assembly area after dark. Strict light and noise discipline is enforced, and artillery fires are maintained. If the attack is to be preceded by an artillery preparation, those units capable of supporting by direct fire occupy firing positions after dark and attempt to locate enemy tanks and antitank firing positions on the forward slope as their primary targets.[40]

Motorized infantry units are employed when the terrain is difficult, enemy antitank units are present in strength and the commander's goal is to achieve surprise. The attack is usually made on foot.[41]

Since the effectiveness of weapons is less at night, and it is difficult to commit the reserve, the majority of forces are contained in a single echelon with a small reserve.[42] Motorized rifle units are reinforced with tanks, artillery, mortars, chemical troops, and sappers. The number of direct fire support weapons is increased. If any or all of them accompany the maneuver unit they fire during short halts, on the flanks or in gaps between units. They do not fire over the heads of troops. If they follow the maneuver unit the distance is 100-200 meters.[43] If the enemy employs illumination while dismounted troops are advancing, they lie down and wait, resuming the advance after darkness returns. If illumination continues, they speed up their rate of march until they can launch a final assault. The preferred method is to approach undetected and rush the enemy position at close range.[44]

C. EMPLOYMENT OF ARTILLERY

The role of artillery takes on increased significance in supporting night attacks. Since target acquisition is more difficult, a greater expenditure of ammunition is anticipated. In addition, types of artillery fire missions increase. As much as a third of available firepower may be devoted to blinding enemy night vision devices. Other missions will be illumination and counterbattery fires against enemy firing positions and searchlights. Artillery must also compensate for the reduced capability of tactical air.[45] For these reasons the amount of artillery used to support night attacks is increased. Artillery will be attached to maneuver units, especially

when they have been assigned a deep objective. If preparatory fires are used, artillery units to be attached will remain under control of the artillery group until the preparatory fires are completed, after which they will be attached to the reserve unit of the maneuver force.[46] There appears to be a conflict of opinion as to the desirability of preceding night attacks with preparatory fires. Marchenko and Garbuz state that the value of surprise outweighs the importance of artillery, and that fire support should be on call. Dudarev, Dukov, and Konoplia state that night attacks will usually be preceded by an artillery preparation, although without illumination. These fire missions are described as short but intensive.[47]

Artillery plays a significant role in battlefield illumination. Although surprise attacks are planned without illumination on the initial objective, illumination in the enemy rear will begin with the final assault. When a mounted attack is planned, especially with tank-heavy forces, illumination is planned to begin at the time the line of departure is crossed. Artillery illumination is kept 500 meters to the front of advancing units, while mortar illumination is kept 250 meters to the front due to its reduced effects.[48] Once illumination has begun, the primary objective is continuously illuminated, as are moving targets. Periodic illumination is directed at probable routes for enemy counterattacks and locations of heavy weapons to assist in target acquisition.[49]

Primary targets for artillery are troop concentrations at strong points, artillery firing positions, command posts, and probable (or known) enemy reserve locations. Barrages are planned at the most likely lines of departure to be used by enemy troops when launching a counterattack. Since large scale enemy counterattacks are considered most likely to occur at dawn, artillery units are expected to be prepared for heavy new engagements at this time.[50]

Night presents certain problems which must be considered. Due to the psychological factors of increased apprehensiveness, disorientation, and disrupted rest habits, it is estimated that there is an increased error rate of 10-15 % compared to daylight operations.[51] Displacement at night is not recommended, but when necessary the new position should be located in close proximity to a road and should be accomplished before dawn. Since vision is

decreased in darkness, observation posts should be relocated closer to the enemy position and on lower ground, so that the objective can be seen silhouetted against the sky. Firing positions to be used at night should be selected bearing in mind that the degree of masking required to conceal muzzle flash is 1.5-2 times as great as in daytime. In general, it is expected that the amount of time necessary to prepare for and execute fire missions will be increased, and that greater amounts of ammunition will be expended per target to accomplish the mission.[52]

D. EMPLOYMENT OF ENGINEERS

Engineer activity in support of night offensive operations consists of engineer reconnaissance, clearing passages through enemy barriers, constructing crossings and passages over and through natural obstacles, and preparing and maintaining routes.[53]

Information on the enemy and terrain is gathered through engineer manned observation and listening posts, aerial photography and reconnaissance patrols. In the daytime, engineer observation posts are manned by 3-4 men; after dark the same area will be covered by a full squad, which breaks down into three teams and moves closer to the enemy defensive line. They will be equipped with night vission devices and may call for illumination by supporting artillery.[54]

Engineer reconnaissance from the march is performed by an engineer squad which rides in reconnaissance vehicles such as the BRDM. Located in the advance party of the march column, the squad is responsible for locating and reporting obstacles and contaminated areas, and, where possible, marking paths through or around them. There are a wide variety of markers available for this purpose in the Soviet inventory (see annex D). The engineer reconnaissance vehicle is capable of emplacing markers automatically, or the crew can dismount and emplace them by hand. This squad also has a limited capability to clear paths through obstacles. A typical load for such a squad would be 25 kilograms of explosives, 3-5 sections of bangalore torpedoes, and 50 illuminated markers.[55] In addition to the engineer reconnaissance patrol, the other two squads from the same platoon would be located futher back in the battalion column.

An MTU armored vehicle-launched bridge will be located in the advanced party. In the lead of the advance guard, no further than 3 KM from the advance party a tank with the KMT mine clearing attachment and another equipped with the BTU dozer blade would be located. Further back in the column would be a BAT artillery tractor/prime mover with dozer blade. (see annex E). These vehicles are used to construct passages through or over obstacles which are beyond the limited capability of the engineer reconnaissance squad in the advance party.

When attempting a mounted frontal attack, either tank or infantry heavy, engineers may or may not conduct a preliminary reconnaissance to select specific passage points. The preferred method of breaching obstacles is to have a KMT equipped tank make the initial breach while pulling a trailing charge of bangalore torpedoes behind it. Once through the barrier it detonates the charge creating a gap about six meters wide. An attempt will be made to create such a gap in front of each leading platoon in the first echelon. If only one gap can be made per company, the width is increased to 11 meters. In any case, one of the gaps in each company sector will be increased to 11 meters to allow artillery, air defense, and support vehicles to pass through. The BTU will improve the passage as soon as the combat vehicles of the first echelon and reserve have passed through.[56]

If the attack is to be dismounted, a sapper detachment of 3-4 men will be attached to each platoon in the first echelon. Based upon reconnaissance reports, an attempt will be made to breach the enemy barrier at a point which provides the best cover and concealment. If possible, sappers will clear mines silently and cut through protective wire. Grapnels will be used to pull the wire apart and permit a single column of troops to pass through. Once the infantry have launced their assault, explosives will be used to widen the gap for passage of artillery and other vehicles. BAT or BTU dozers will improve the surface of the passage. In all cases, once the passage has been made, orientation markers will be emplaced which designate approaches to the passage, its dimensions, and the entry and exit points.[57]

The preferred method of crossing water obstacles at night is by bridging. Sufficient bridges are constructed to permit the supported unit to cross within four hours. Reconnaissance of crossing sites is conducted by engineer

assault-crossing units supported by regimental or division reconnaissance units. PT-76 tanks and amphibious personnel carriers are employed. A traffic control detachment will be organized to control movement from the assembly area to the crossing site. Route markers will be emplaced to direct units to their assigned crossing points. If the crossing is made at a ford or by raft, the lateral boundaries will be marked, as well as passages through underwater obstacles. If tanks cross submerged, their snorkel tubes will have lights affixed to them and their assigned exit point on the far shore will be marked.[58]

CHAPTER III

TRAINING AND THE CURRENT LEVEL OF PROFICIENCY IN NIGHT OPERATIONS

Articles published in Voennyi Vestnik, Znamianosets, and Krasnaia Zvezda since 1973 dealing with Soviet night training exercises indicate that the emphasis is on developing proficiency at the sub-unit level. Of the 21 articles (16 from Voennyi Vestnik) published, one dealt with squads, one with platoons, six with companies, five with battalions, and the others with low-level support units or individual training. In none of these exercises was there any indication that a unit of regimental size or larger was involved. Of the three large-scale maneuvers conducted in 1976 at which foreign observers were present, only one night exercise was conducted and it was a counterattack.[59] Although the Soviets seldom publish articles concerning large units, this cannot be taken to mean that night operations at higher levels are never conducted, but the emphasis appears to be on subunits.

The sources referred to above do not give a clear indication as to what percentage of tactical training occurs at night as a rule, but most writers imply that more is needed. One writer complained that some tactical units limit night training to regrouping, vehicle maintenance, and reconnaissance activity.[60] In one instance a commander claimed that in his battalion a great deal of training was done at night.[61] However, another writer, analyzing mistakes made by a chemical decontamination unit supporting a battalion exercise, pointed out that no individual training on use of equipment at night had occurred prior to the maneuver.[62]

The majority of problems in maneuver units appears to be associated with loss of direction after the attack has begun. Every article strongly emphasized the necessity of conducting a daylight reconnaissance and selecting easily identifiable terrain features to guide on, as well as the use of the compass. In one tank company exercise, despite a lengthy and detailed preparation phase, two tanks got lost in the initial phase of the attack after passing through a minefield. In the second phase two additional tanks deviated from the assigned direction, including the platoon leader's.[63] Motorized infantry

units and reconnaissance units also experienced difficulty in night navigation.[64]

Problems in operating at night are not limited to junior officers and troops. In a revealing article describing a terrain walk, COL A. Demidov points out that motorized rifle battalion commanders demonstrated an inadequate knowledge of the use of artillery and mortars at night, as well as the proper use of engineers and chemical troops. They also were deficient in light and noise discipline while moving to the command/observation post, a problem noted in the previous exercise. In the conduct of the attack they were disoriented, and even after flares were fired over the exercise area they could not determine if the enemy was defending or counterattacking. He further points out that many officers think it is necessary to maneuver only in straight lines, thus precluding any attempt to hit the enemy on the flanks or in the rear.[65] This tendency on the part of commanders to limit themselves to a frontal attack with all units on line was noted by three other authors.[66]

Difficulty in conducting night operations is not limited to maintaining direction. A tank company commander reports problems in his unit with fire adjustment when firing at night. When using the night sight his gunners had difficulty observing the flight path of the round and its impact. Yet when the daylight sight was used the muzzle flash temporarily blinded his gunners. To remedy this he directed that firing be done using the daylight sight with the interior turret lights turned off. Gunners were instructed to close their eyes immediately before firing. This technique, coupled with extensive practice improved performance, but loaders had difficulty operating in the dark. The author also reported the difference in ballistics between day and night firing caused problems when weapons were zeroed in daylight.[67]

Nor are problems limited to maneuver units. Discussing a training exercise in which a tank battalion was being decontaminated, one author noted that equipment was not ready for operation on time and some treatment sites were in total darkness while others were illuminated with vehicle headlamps, a violation of light discipline. Routes to various stations were inadequately indicated due to a shortage of markers, and tank crews did not know how to use their air-pressure units.[68]

In a night exercise of a motorized rifle battalion the unit signal officer found that his troops could not navigate from the assembly area to the battalion command/ observation post in darkness, even though they had covered the same route earlier in daylight. Radio operators had difficulty in tuning radio sets and linemen required much more time to lay cable.[69]

One writer estimated that it requires 70-80% more time for an engineer assault-crossing platoon to ferry a tactical unit across a river at night than during daylight hours.[70] The commander of an antiaircraft artillery battery (ZSU-23) stated that his unit trains frequently at night, yet he acknowledged problems in tracking targets which required several exercises to correct.[71] An article on night operations of rocket troops reported that soldiers were too slow in the use of their various instruments despite the fact that similar exercises were conducted in daylight, and that the effects of fatigue were clearly visible in the later stages of one night exercise, resulting in a general lack of precision in accomplishment of assigned tasks.[72] An observer of a mortar battery exercise reported similar problems when the unit surveyed new firing positions at night.[73]

These examples, of course, do not indicate that the Soviet Army is beset with problems rendering it incapable of operating at night, and the fact that they occur is proof that night training is being conducted. Soviet authors, with few exceptions, go on to point out that these problems are eventually "solved" and the exercises always end up "successfully." However, since these articles are intended to suppliment field regulations in the education and training of junior officers and NCO's, they point out areas where improvements need to be made. Considering the two-year enlistment, the problem of adequately training small units is a significant one.

The admissions in open source material that problems do exist must be considered in the light of how the Soviets approach night training. The planning for these exercises is invariably detailed and lengthy, leaving subordinate commanders little room for initiative in problem solving. Exercises are writen in such a way that there is only one acceptable course of action available, especially in tactical maneuvers which are stereotyped and simplistic. The implied and stated guidance is constant: take plenty

of time, plan in detail, use daylight. It is more important to avoid errors than to capitalize on opportunities that may arise in a rapidly changing situation. Commanders are constantly reminded that night offensives are difficult to control, and that they require lengthy preparation, close coordination, and constant supervision to be brought to a successful conclusion. The fact that none of the articles published since 1973 indicate that a regiment or larger size unit conducted a night offensive training exercise indicates that this problem has not been solved.

CHAPTER IV

CONCLUSIONS

Much has been written in the Western and Soviet press concerning the intensity and persistence of operations in a future conflict between armies of the two blocs. Writers on both sides imply that one characteristic of this type of conflict will be uninterrupted operations on a round-the-clock basis. For some, such an assumption conjures up images of wave after wave of tanks, mechanized infantry, and self-propelled artillery launching a steady attack on wide frontages for a period lasting several days or even weeks. The evidence does not support such a conclusion.

To determine the nature of a future conflict with Warsaw Pact armies, it is essential to distinguish between goals and capabilities. While it is true that any army would like to maintain unremitting pressure on its opponent, its ability to do so is not necessarily equivalent to its wish to do so. It is true that the Soviets have made a significant investment in technology to improve their capability for night operations. In addition to the night vision devices employed by Western armies, the Soviet Army has deployed as standard equipment such specialized items as on-board vehicle navigation systems, special artillery illumination rounds and a wide variety of illuminated route markers. However, the presence of these items is not proof that units are skilled in their use. The problems described in Chapter III indicate that Soviet junior officers and NCO's have difficulty despite these orientation aids.

COL. A. A. Sidorenko, in his book The Offensive, states that night operations in the future will develop on a broader scale because of the uninterrupted nature of combat operations.[74] COL. A. Demidov states that:

> The decisive and highly maneuverable nature of modern war requites that it be conducted without break, day and night. .[75]

The other writers whose articles are discussed in Chapter III often make similar statements, yet they appear to be prescriptive rather than descriptive. The reader is impressed with the necessity to improve capabilities, especially in those articles dealing with combat arms units.

While the combat examples reviewed in Chapter I often showed skill and resourcefulness on the part of Red Army troops, it is significant that, with few exceptions, the majority of night attacks conducted in the first two years of World War II were made by units at regimental level and below. Night attacks by division or larger size units units were not conducted with regularity until 1943, after a great deal of combat experience had been gained. Current doctrine as expressed in the literature reviewed in Chapter II shows that careful and deliberate planning, simplified maneuver and close supervision continue to dominate Soviet thinking regarding night operations. The recurring problems described in Chapter III do not indicate that a high level of expertise in conducting movement and offensives at night has been reached. The fact that the same deficiences have been repeatedly mentioned since the early 70's indicates that battalions and companies have reached a certain level of proficiency which they cannot improve upon, possibly due to the two year enlistment policy. These facts lead to the conclusion that an offensive of several days duration in which all units are committed on a 24-hour a day basis is not feasible, since it would not be possible to plan and prepare with the degree of care and deliberation the Soviets indicate is so necessary to successfully operate at night. Since divisions operate in two echelons it is more likely that one echelon would be committed to daylight operations while the other used daylight to prepare for night operations exclusively. In this way the division as a whole would be operating around the clock, but subordinate units would get some relief each 24 hour period. Such a concept would have the added advantage of developing expertise in the units which attack only at night. Although the lack of information on Warsaw Pact training exercises conducted at division or higher level makes it difficult to determine whether the Soviets and their allies have the capablility and intention to commit whole divisions during night offensives, historical experience and the present level of capability indicate that a likely scenario for a Soviet offensive in Western Europe today would be as follows. Within the sector assigned to a combined arms army, three division-size units would be in the first echelon conducting a daylight offensive. At approximately 1400-1500 hours the division commanders would decide which objectives can still be taken by nightfall and an attempt will be made to determine the shape of the probable front line trace as it will appear

at the end of the day. Those areas which form salients into the Soviet held area of the battlefield or provide especially good observation and fire over the battlefield are logical objectives for a night attack. When these objectives are selected, the commanders of second echelon regiments or battalions who have not been committed during the day will be called forward, given their mission, and begin planning for the operation. The attacks will probably be launched between 2200 and 0200 hours and will take the form of a series of battalion and/or regimental attacks to seize enemy strong points. The size of the attack will depend upon the enemy strength on the objective. Regiments will attack battalions or companies, battalions will attack companies or platoons.

The type of attack will depend upon terrain and enemy antitank capability. If trafficability and maneuverability are limited, the initial assault will be made by dismounted infantry. There may or may not be an artillery preparation, but the terrain will not be illuminated until after the first assault. If preparatory fires are used, they will be intensive but of short duration, probably 8-10 minutes. Supporting fires may be provided by BMP's, tanks, artillery pieces in a direct fire role and antitank weapons such as the SPG-9 or Sagger antitank missile, provided that firing positions on the flanks of units are available. If possible, engineers will attempt to clear paths through mine and wire barriers by hand so as to permit the attacking infantry to deploy into an assault line undetected. One path, a minimum of six meters in width will be cleared for each attacking platoon. Supporting weapons and vehicles will follow the infantry and pass through the obstacle as soon as the assault is launched.

In open terrain, the attack would be led by tanks. KMT's and engineers with explosives would make passages through mine and wire obstacles. An artillery preparation would begin before the attacking units cross the LD. There may or may not be battlefield illumination, but if it is used it would initially be located slightly to the rear of the objective(s). Infantry would accompany the tanks up to the barrier, but would probably dismount for the final assault, moving directly behind or between tanks to protect them from antitank weapons. Once the initial objective is taken, they would remount if a secondary objective has been assighed at a distance greater than 200-300 meters. This second type of attack

is possible even if the enemy is known to have a good antitank defense, if the attacking unit can obtain sufficient artillery support to suppress them. It is a probable type of attack if chemical munitions are used, since the Soviets believe that it is safer to cross contaminated areas by vehicle, and the wearing of protective equipment hinders the ability of crew served weapons personnel to use night vision devices.

Soviet doctrine provides ample indications which can alert the defender that a night attack is planned. The company or battalion successfully defending a position which has been flanked on both sides by late afternoon is a prime target for a night attack. Two indicators that such is the case would be the repositioning of artillery to the area occupied by second echelon battalions and regiments, and the pre-positioning of engineer equipment such as dozer blades and mine clearing attachments in logical assembly areas for night operations.

The NATO unit commander who anticipates a night attack on his position can do a number of things to disrupt enemy activity. The extensive use of OP/LP's is especially important. In every combat example of a successful surprise attack by stealth, Soviet troops were not detected prior to launching their close-in final assault. No explanations for the failure of German security are given, but the implications are that no form of outpost system was being used in the areas in which attacks took place. Battlefield illumination should be preplanned on expected enemy routes of advance and in probable firing positions of direct fire supporting weapons. Illumination renders night vision devices useless. At least a few of the defenders' supporting artillery and mortar weapons should be tasked with this as their primary mission, with pre-set ammunition on hand ready to fire.

Commanders should consider occupying alternate or supplementary positions after dark so that the attackers' artillery fires and assault will be directed against an unoccupied area. Consideration should be given to relocating battalion and brigade reserves after dark, since the Soviets prefer to use artillery rather than maneuver to break up counterattacks. Reserve units whose position has been detected by the Soviets in the daytime

can expect to be the target of artillery fire regardless of whether the enemy attack is preceded by preparatory fires, and can expect to encounter a barrage enroute to their counterattack objective. For this reason a less obvious route as well as a different assembly area may be a good idea. Some token engineer effort on the obvious route could be an effective deception measure.

It remains to be seen whether the Soviets can improve their capability for conducting night attacks. The logical move in this direction would be to develop a capability for divisions and combined arms armies to conduct such attacks, however their reluctance to discuss operations at this level in the open press makes such a determination difficult. For the present it appears that a sustained offensive in the the Soviet sense means daylight attacks by first echelon units followed by smaller scale limited objective attacks at night by second echelon units, the offensive being resumed the following day by the units which were originally in the first echelon. This concept of course, is limited to the penetration. Once this has been achieved and the offensive assumes the character of a pursuit, round-the-clock operations by all units is probable until the offensive is halted.

FOOTNOTES

[1] John Erikson, "Soviet Ground Forces and the Conventional Mode of Operations", Military Review, January, 1977 p. 49.

[2] Gen. -Lt. E.T. Marchenko, Taktika v Boevykh Primerakh Batal'on, Moscow, Voenizdat, 1974.

[3] Iu. Sukhinin, "Boevye Deistviia Strelkovoi Divizii Noch'iu", Voenno-Istoricheskii Zhurnal, No. 12, 1977, p. 50.

[4] Gen-Lt. E.T. Marchenko, Taktika v Boevykh Primerakh-Rota, Chapter 1, Moscow, Voenizdat, 1974.

[5] Ibid., p. 67

[6] Ibid., p. 25

[7] Ibid., p. 59

[8] Ibid., p. 19

[9] Ibid., p. 20

[10] Ibid., Each tactical example concludes with a brief analysis of the lessons learned. Since all the examples represent successful actions, the lessons are usually portrayed as principles to be followed which are still relevant.

[11] Marchenko, Batal'on pp. 96-100

[12] Ibid., pp. 100-105

[13] Radzievskovo, A.I., Taktika v Boevykh Primerakh Polk, Moscow, Voenizdat, 1974, p. 112.

[14] Ibid.

[15] Ibid., p. 113

[16] Ibid., p. 111

[17] Ibid., p. 113

[18] Sukhinin, p. 50.

[19] Ibid.

[20] Ibid., p. 52

[21] Ibid.

[22] Ibid., p. 53

[23] Ibid., p. 54

[24] Ibid.

[25] G. Sokolov, "Razvedka Ukhodit v Noch'", Voennyi Vestnik, 1974, pp. 25-26.

[26] V. Volobuyev, "Night Search", Soviet Military Review, May 1976, pp. 25-27.

[27] R.B. Braginskii, Taktika Artillerii v Boevykh Primerakh, Moscow, Voenizdat, 1977, pp. 66-67.

[28] COL. P.I. Konoplia and COL. N.A. Maikov, Tankovyi Batal'on v Boiu, Moscow, Voenizdat, 1972, p. 210.

[29] COL. R. Dukov, "Dve Ataki" Krasnaia Zvezda, 17 March 1977, p. 1.

[30] Ibid., also Evdokimov, p. 1.

[31] LTC R. Mariukhin, "Boevye Deistviia Noch'iu" Voennyi Vestnik, February 1974, p. 28.

[32] Evdokimov, p. 1.

[33] G.I. Garbuz, D.F. Loza, and I.F. Sazonov, Motostrelkovyi Batal'on v Boiu, Moscow, Voenizdat, 1972, p. 127.

[34] COL. R. Dukov, "Komandir v Nochnom Boiu" Voennyi Vestnik, February 1974, p. 52.

[35] Dukov, Krasnaia Zvezda, p. 1.

[36] Garbuz, p. 94.

[37] Ibid., p. 125-126.

[38] LT. A. Svintsov, "Tankisti Atakuiut Noch'iu" Voennyi Vestnik. February 1976, p. 81.

[39] Konoplia, p. 211. See also Garbuz, p. 154.

[40] Garbuz, p. 139, 152-157.

[41] Ibid., p. 144.

[42] Ibid., pp. 97-98.

[43] Ibid., p. 154.

[44] Dukov, Voennyi Vestnik, p. 54.

[45] COL. S.N. Dudarev and COL. B.V. Shipov, Artilleriia v Osobykh Usloviiakh, Moscow, Voenizdat, 1970, p. 151.

[46] Garbuz, p. 98.

[47] Didarev, p. 149; Dukov, Krasnaia Zvezda, p. 1; Konoplia, p. 212.

[48] Garbuz, p. 156.

[49] Dudarev, pp. 148-150.

[50] Ibid., p. 156.

[51] Ibid., p. 143.

[52] Ibid., p. 142.

[53] COL. V.K. Shamshurov, Inzhenernoe Obespechenie Boevykh Deistvii Noch'iu v Osobykh Usloviiakh, Moscow, Voenizdat, 1969, p. 13-14.

[54] Ibid., p. 15.

[55] LTC M. Smirnov, "Inzhenernoe Obespechenie Marsha Noch'iu", Voennyi Vestnik, March 1974 p. 93.

[56] Shamshurov, p. 18.

[57] Ibid., pp. 19-25. Also Garbuz, p. 153.

[58] Ibid., pp. 33-38.

[59] Defense Intelligence Agency, Soviet and Warsaw Pact Exercise - 1976 Kavkaz - Sever - Shchit - 76, Washington D.D., April 1977.

[60] Dukov, "Komandir v Nochnom Boiu", p. 53.

[61] Vats, p. 85.

[62] COL N. Ivashentsev, "Osobennosti Spetsialnoie Obrabotki Noch'iu", Voennyi Vestnik, February 1974, p. 106.

[63] Svintsov, pp. 83-84.

[64] COL. M. Mordas, "Taktiko- Stroevce Zaniatie Noch'iu", Voennyi Vestnik, March 1976, p. 37.

[65] COL. A. Demidov, "Gruppovoe Upravhnenie Noch'iu", Voennyi Vestnik, March 1976, pp. 64-66.

[66] Dukov, p. 54; Mariukhin, p. 33; Mordas, p. 41.

[67] CPT. A Avksent'ev, "S Dnevnym i Nochnym Pritselom", Voennyi Vestnik, September, 1975, p. 95.

[68] Ivantshev, p. 104.

[69] LTC V. Usmanov, "Noch Umelym ne Pomekha" Voennyi Vestnik, February 1974, p. 99.

[70] LTC G. ZUBENKO, "Perepravochno-Desantnyi Vzvod na Nochnom Zaniatii", Voennyi Vestnik, September 1974, p. 28.

[71] Vats, p. 86.

[72] LTC. V. Shibanov, "Kompleksnoe Zaniatie Noch'iu", Voennyi Vestnik, February 1974, pp. 74-75.

[73] LTC. V. Dementev, "Minometnaia Batareia v Nastuplenii" Voennyi Vestnik, February 1974, p. 54.

[74] COL A.A. Sidorenko, Nastuplenie, Moscow, Voenizdat, 1970, p. 203.

[75] Demidov, p. 115.

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No.	Location & Date of Opn.	Unit Division	Depth of Obj (KM)	Length Arty Prep (Min)	Time of Attack	Duration of Opn (Hrs)	Depth of Penet	Time in Prepar. (Hrs.)
1.	Smolensk 18 Aug 41	252	3	None	2130	6	2.5 Km	7
2.	Moscow Ctr. Offensive 6 Dec 41 7 Dec 41 22 Dec 41 20 Dec 42	 330 322 250 247 173	 2 2 8 1.5	 10 10 None 10	 2400 2400 1800 0200	 7 7 14 5	 3 Km 2 Km 6-7 Km 1 Km	 4 12 14 4
3.	Zaporozhsky 13 Oct 43	39Gds 88Gds 70Gds	4	15	2200	11	10 Km	21
4.	Kiev 5 Nov 43	136 180 240	8	10	2000	8	8	3
5.	Lublinsk 19 Jul 44	39Gds 89Gds	6 4	15 10	0200 2030	9 9	5 4	6 5
6.	E. Prussia 21 Feb 45	16Gds	8	20	2300	8	6-8 Km	7
7.	Berlin 16 Apr. 45	60Gds	3	25	0520	1.5	3-4 Km	Sev. days

Source: Sukhinin, p. 223.

Annex A:

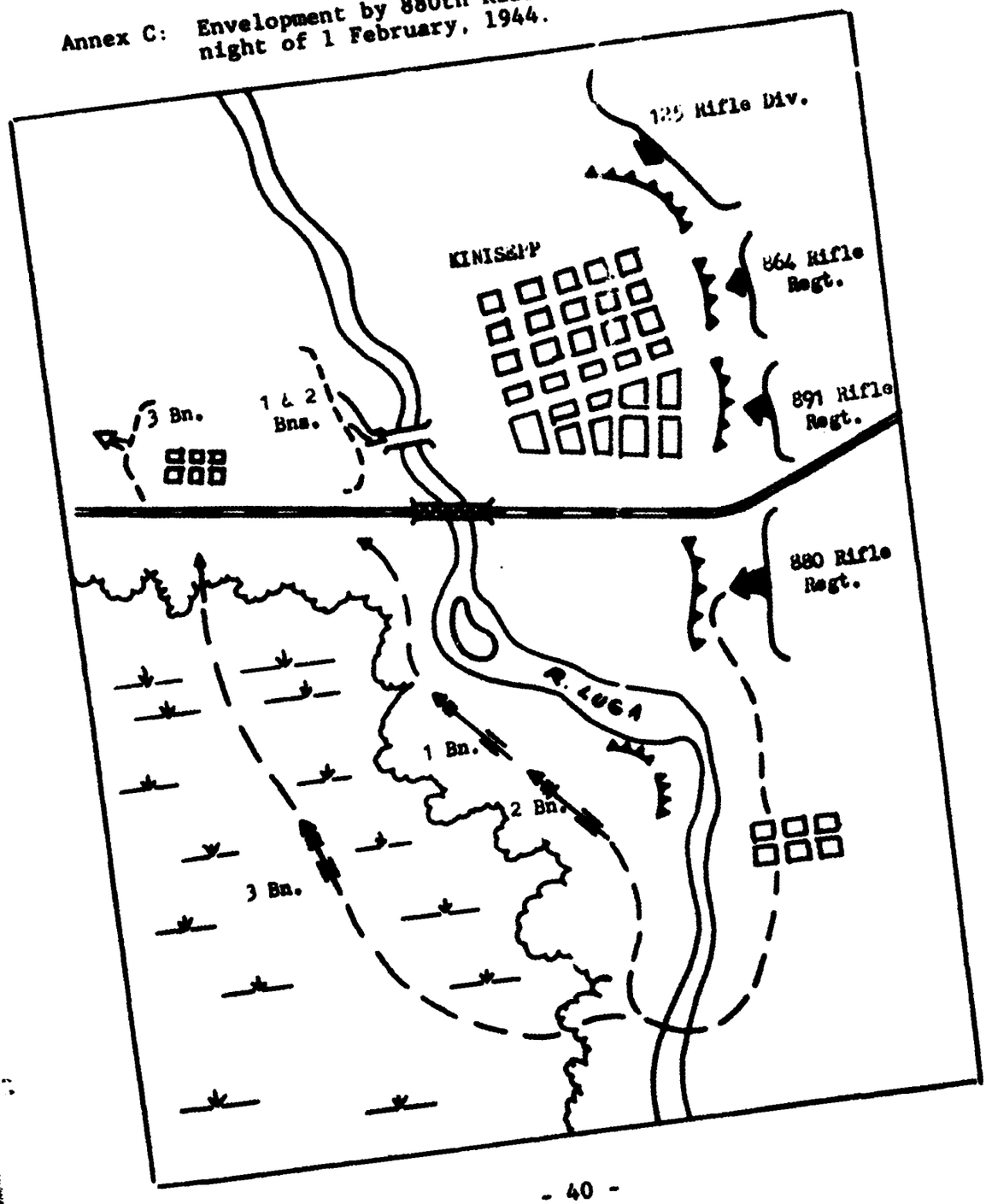
Annex B:

Characteristics of Company Size
Night Attacks Conducted by Soviet Army in WW II

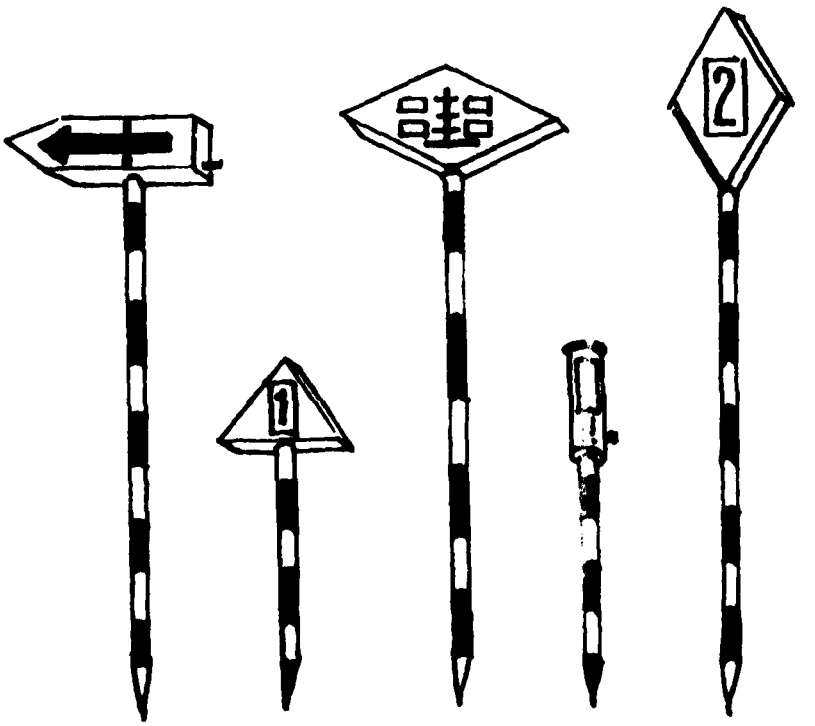
Type Unit and Date of Opn	Mission	Time of Attack	Prep Time	Arty Prep	Illum	Scheme of Maneuver	Reinforcements
Inf. Co. Nov. 41	Eliminate Salient	1900	1 hr	No	No	Double Envelopment	1 Inf. Plat.
Inf. Co. Jul 42	Eliminate Strong Pt.	0200	24 hrs	No	No	Single Envelopment	1 Scout Plat. Sapper Det.
Inf. Co Mar 43	Eliminate Strong Pt.	0025	16 Days	25min	No	Double Envelopment	1 Scout Sqd. 2 MG Plat. 1 Sapper Plat. 2 Mortar Co. 1 AT Plat.
Tank Co. Mar 43	Advance Guard	2100	None	No	No	Frontal Assault	1 Inf. Plat
Inf. Co. Jun 43	Eliminate Salient	0220	3 Days	No	No	Frontal Assault	1 SMG Plat. 1 Sco[illegible] Plat. 1 Sappe[illegible] Plat.
Inf. Co. Jul 43	Eliminate Salient	0300	1 week	No	No	Frontal Assault	1 Scout Plat. 1 Sapper Plat. 1 SMG Plat. 2 Mortar Cos.
Inf. Co. Aug 43	Establish Bridgehead	2300	1 week	No	No	Frontal Assault	Undetermined No. Scouts & Sappers
Ind. Co. Sep 43	Establish Bridgehead	0230	1½ hrs	No	No	Frontal Assault	1 MG Plat. 1 SMG Plat. 1 AT Plat. 1 Mortar Plat.
Inf. Co. Dec 43	Eliminate Salient	2300	7 hrs	No	No	Single Envelopment	1 Mortar Co. 1 AT Gun
Inf. Co. Dec 43	Eliminate Strong Pt.	2040	48 hrs	5min	Yes	Single Envelopment	1 Sapper Dt. 1 SMG Plat. 1 Mortar Btry. 1 Arty. Bn.
Inf. Co. Jan 44	Eliminate Strong Pt.	2300	8 hrs	No	No	Frontal Assault	1 Mortar Co. 1 Mortar Bn 1 Arty. Bn 1 Sapper Det.

Source: Data derived from Marchenko, Rota.

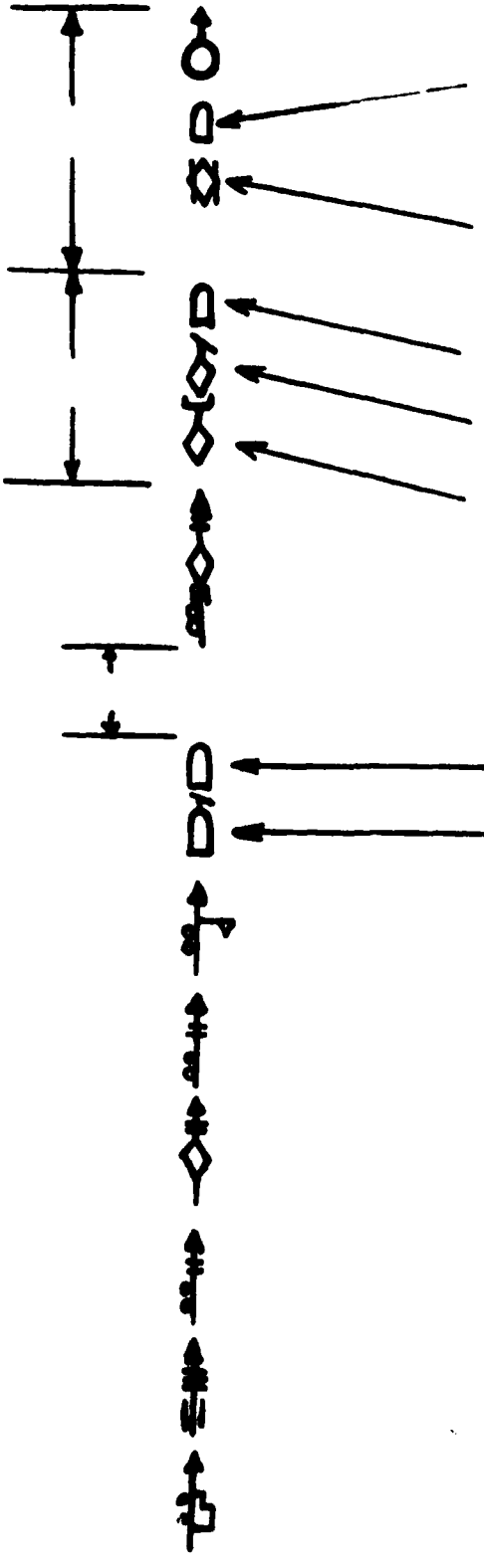
Annex C: Envelopment by 880th Rifle Regiment on the night of 1 February, 1944.



Annex D: Examples of Illuminated Markers to indicate routes, passage points, turn-offs etc.



Annex F: Engineer Units as Part of a Motorized Rifle Battalion in a Night March



Advance Party:

Engineer squad w/ 30 illuminated markers, 20 Bangalore torpedoes

MTU-1 (AVLB)

Advance Guard:

Engineer squad w/ 75 kg explosives, 40 Bangalore torpedoes, 190 illum. markers

Tankw/ dozer blade

Tank w/ KMT-4 Mine Clearing Device

Main Body

Engineer Squad w/ 25 kg explosives, 30 Bangalore torpedoes

BAT (Tractor w/ dozer blade)

Annex F: Schematic Diagram of a Decontamination Area for Use at Night

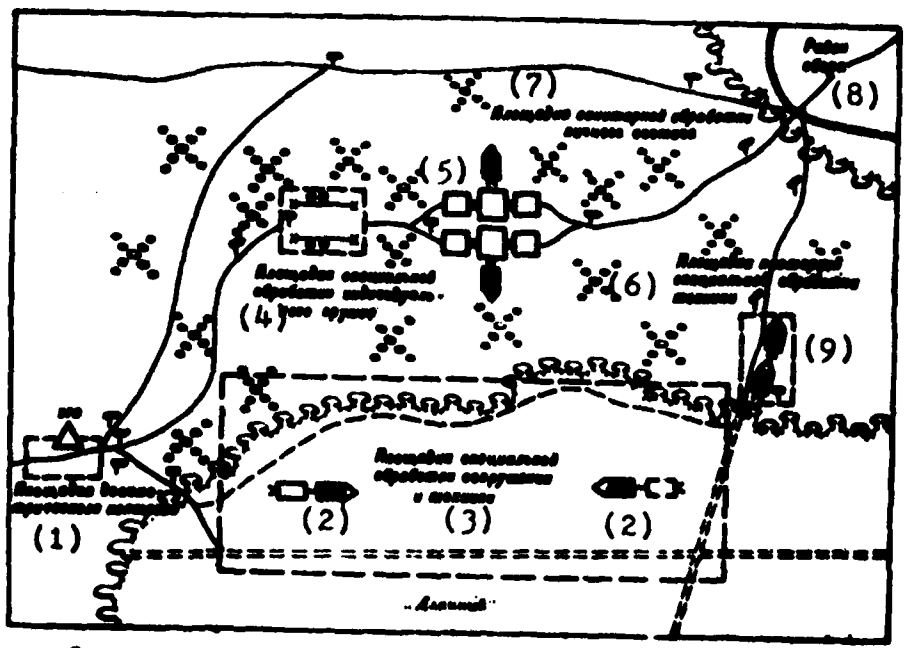


Схема работы специальной обработки, подготовленного | отой химической защиты ночью

1. Dosimetric monitoring site
2. Decontaminating unit "DKV"
3. Weapons and equipment decontamination site
4. Individual weapons decontamination site
5. Truck-mounted disinfection and shower unit
6. Site for repeated decontamination of equipment
7. Sanitary treatment site for personnel
8. Truck-mounted spraying unit